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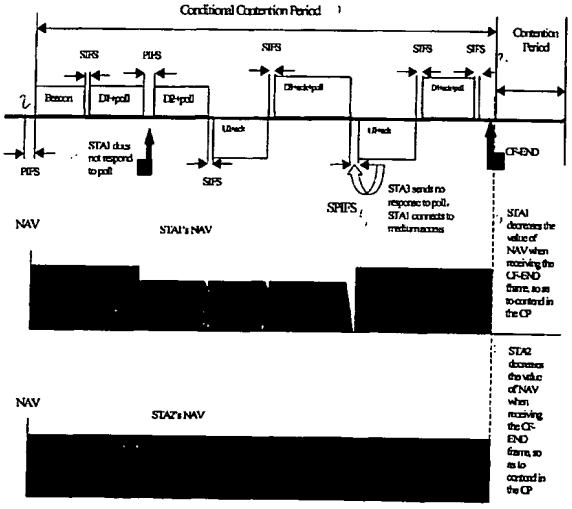
Declaration under Rule 4.17:

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES,*

[Continued on next page]

(54) Title: EFFECTIVE POINT COORDINATION FUNCTION IN WIRELESS LAN



(57) Abstract: This invention provides a system and method for enhancing point coordination function PCF in wireless LANs. A contention procedure is introduced into PCF in this invention. When the point coordinator (PC) polls the mobile terminal who has no frame to send, the terminal does not respond to the CF-Poll from PC, and will adjust its NAV (Network Allocation Vector) and set it to a special value that is defined as SPIFS (S-PCF Interframe Space). When data is ready on this mobile terminal when it is still in the same Contention Free Period CFP and its poll period is over, the terminal can contend for accessing the medium. If it detects the medium to be idle for SPIFS period during the CFP (Contention Free Period), then the mobile terminal gains the control of medium and starts to send the ready data. So this mobile terminal can have another opportunity to gain the control of medium during this CFP instead of next CFP, and this can decrease the transmission delay.

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FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H04L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, COMPENDEX, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	US 2002/122409 A1 (KANDALA SRINIVAS) 5 September 2002 (2002-09-05) abstract paragraphs 7-24; paragraphs 62-86; figures 2A,2B,4,5,6A,6B --- -/--	1,2, 16-18,31 3-15, 19-30

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

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C.(Continuation) DOCUMENTS IDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	"Information technology-Telecommunications and information exchange between systems-Local and metropolian area networks-Specific requirements. Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications. Chapter 9" ISO/IEC 8802-11 ANSI/IEEE STD 802.11, XX, XX, 1999, pages 70-97, XP002236335	3-7, 10-15, 19-23, 26-30
A	paragraphs 9.2.3; 9.2.3.1-9.2.3.4; 9.2.4; 9.2.5.2; 9.2.10; 9.3; 9.3.1-9.3.4	1,2,8,9, 16-18, 24,25,31
Y	WO 96/35273 A (MOTOROLA INC) 7 November 1996 (1996-11-07)	8,9,24, 25
A	page 11, line 19 -page 12, line 20 page 13, line 6 -page 14, line 31 page 18, line 19 -page 20, line 11 page 26, line 7 -page 27, line 8 figures 2,5-8	1-7, 10-23, 26-31
A	EP 1 233 574 A (TEXAS INSTRUMENTS INC) 21 August 2002 (2002-08-21) abstract column 1, line 5 -column 2, line 55 column 4, line 19 -column 10, line 48 column 11, line 44 - line 57	1,8,9, 13,16, 17,24, 25,28,31
A	STINE J A ET AL: "Tactical communications using the IEEE 802.11 MAC protocol" MILITARY COMMUNICATIONS CONFERENCE, 1998. MILCOM 98. PROCEEDINGS., IEEE BOSTON, MA, USA 18-21 OCT. 1998, NEW YORK, NY, USA,IEEE, US, 18 October 1998 (1998-10-18), pages 575-582, XP010307881 ISBN: 0-7803-4506-1 paragraphs 3.2-3-8; 4.3; 6.7	1,4-6, 16,17, 20-22,31
P,A	WO 03/039035 A (AT & T CORP) 8 May 2003 (2003-05-08) abstract page 4, line 12 -page 7, line 12	1,8-17, 24-31

INTERNATIONAL SEARCH REPORT

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PCT/IB 03/06093

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2002122409 A1	05-09-2002	NONE	
WO 9635273 A	07-11-1996	US 6006017 A	21-12-1999
		AU 688217 B2	05-03-1998
		AU 5540496 A	21-11-1996
		CA 2219526 A1	07-11-1996
		CN 1186578 A	01-07-1998
		EP 0861548 A1	02-09-1998
		WO 9635273 A1	07-11-1996
EP 1233574 A	21-08-2002	US 2002071449 A1	13-06-2002
		EP 1233574 A2	21-08-2002
		JP 2002314551 A	25-10-2002
WO 03039035 A	08-05-2003	US 2003161340 A1	28-08-2003
		WO 03039035 A2	08-05-2003